



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,622	03/09/2004	Taiichiro Aoki	KNI-185-A	2811
21828 7590 06/20/2007 CARRIER BLACKMAN AND ASSOCIATES 24101 NOVI ROAD SUITE 100 NOVI, MI 48375			EXAMINER KARLS, SHAY LYNN	
			ART UNIT 1744	PAPER NUMBER
			NOTIFICATION DATE 06/20/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

cbalaw@gmail.com
cbalaw@ameritech.net
wblackman@ameritech.net

Office Action Summary	Application No. 10/796,622	Applicant(s) AOKI ET AL.	
	Examiner Shay L. Karls	Art Unit 1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 3,6,7,9 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-2, 4-5, 8, 10-11, 13-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/10/07 has been entered.

Election/Restrictions

Claims 3, 6-7, 9, 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/30/06.

Claim Objections

While claim 1 includes a positive recitation of the nozzle, it is suggested that the applicant amend claim 15 to positively recite the nozzle in the body of the claim rather than in the preamble of the claim for clarity purposes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. (PGPub 2003/0127046) in view of Eriksson (USPN 6321688) and further in view of Ichinose et al. (USPN 4830882).

Zehner teaches a cleaning apparatus for a paint spray gun nozzle. The apparatus comprises a cleaning tank (12) containing a cleaning liquid (64). There is a cylindrical brush (52), which is disposed in the cleaning liquid (figure 4) for cleaning a nozzle (112) and the lower end of the nozzle is in engagement with the brush. There is a motor (28) used to rotate the brush when the lower end of the nozzle is disposed in engagement with the brush. The motor rotates the brush is rotatable around a longitudinal axis (as shown by arcuate arrow in figure 4 and as described in paragraph 0016). Zehner teaches all the essential elements of the claimed invention however fails to teach that the nozzle has an elongated slit-like discharge opening, that the brush can be reciprocated horizontally and vertically (claim 1) and that the device for rotating the brush also helps to move the brush horizontally and vertically (claim 8).

Eriksson teaches a cleaning apparatus comprising a longitudinal brush (29) that reciprocates vertically and horizontally (figure 3c and 3d). There is a swinging arm (59') for moving the brush horizontally and an extension arm (81) for moving the brush vertically.

Art Unit: 1744

Ichinose teaches a paint gun with different nozzles, wherein one of the nozzles comprises an elongated slit (figure 13c).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's brush so that it can be reciprocated vertically and horizontally as taught by Eriksson since the reciprocating brush will ensure that the entire portion (tip and sides) of the paint spray gun nozzle will get cleaned without spreading contamination (col. 2, lines 23-44). Additionally, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the shape of the orifice of Zehner's nozzle with an elongated slit-like opening as taught by Ichinose because it is known in the art to use various shapes of nozzle orifices on paint spray guns depending on the use of the spray paint (figures 13a-13d). Using a slit-like opening will cause the spray paint to be diffused in a fan-like manner, which leads to an even distribution of paint allowing for even coverage. Therefore, a slit-like opening in the nozzle that is substantially the same length as the brush would have been an obvious modification to one of skill in the art since changing the shape of the orifices is well known in the art and one of skill in the art would know what size and shape the orifice should be based on the use of the nozzle.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046) in view of Eriksson ('688) and Ichinose ('882) as applied to claim 1 above and further in view of Tsutsumi et al. (USPN 6594457).

Zehner in view of Eriksson and Ichinose teach all the essential elements of the claimed invention however fail to teach that the hair structure of the brush is arranged obliquely with respect to the longitudinal axis of the brush. Tsutsumi teaches a longitudinal brush with the

Art Unit: 1744

bristles (211) that are arranged obliquely (figure 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's bristles so that they are obliquely arranged as taught by Tsutsumi to increase the life expectancy of the brush.

Bristles that are slanted rather than perpendicular to the longitudinal axis undergo stress when in use and therefore, will break more often than slanted bristles. Additionally, the slant of the bristles will create an induction force caused by the cleaning bias, and also a shearing force caused by the mechanical scrubbing of the brush. The induction force and the shearing force will act on the unwanted material on a nozzle and the material will be captured on the brush more effectively (col. 8, lines 33-39).

Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046) in view of Eriksson ('688) and Ichinose ('882) as applied to claim 1 above and further in view of Batchelder (USPN 2164443).

Zehner in view of Eriksson and Ichinose teach all the essential elements of the claimed invention however fail to teach a brush cleaning means (claim 4) or a comb (claim 10) for scraping material off the long-length brush as it is rotated. Batchelder teaches a brush cleaning means (63) with teeth (66) adjacent a brush (22) with bristles. The cleaning means combs through the bristles as the brush rotates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's cleaning apparatus with a cleaning means such as a comb attached to the tank as taught by Batchelder so that the long-length brush will be kept clean since the comb-type element will remove any accumulation of material that accrue on the bristles (page 3, col. 2, lines 20-34).

Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046), Eriksson ('688), Ichinose ('882) and Tsutsumi ('457) as applied to claim 2 above and further in view of Batchelder (USPN 2164443).

Zehner, Eriksson, Ichinose and Tsutsumi teach all the essential elements of the claimed invention however fail to teach a brush cleaning means (claim 5) or a comb (claim 11) for scraping material off the long-length brush as it is rotated. Batchelder teaches a brush cleaning means (63) with teeth (66) adjacent a brush (22) with bristles. The cleaning means combs through the bristles as the brush rotates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner, Eriksson, Ichinose and Tsutsumi's cleaning apparatus with a cleaning means such as a comb attached to the tank as taught by Batchelder so that the long-length brush will be kept clean since the comb-type element will remove any accumulation of material that accrue on the bristles (page 3, col. 2, lines 20-34).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. (PGPub 2003/0127046) in view of Eriksson (USPN 6321688) and Ichinose ('882) as applied to claim 1 above and further in view of Tsutsumi ('457).

Zehner in view of Eriksson and Ichinose teach all the essential elements of the claimed invention however fails to teach that the hair structure of the brush is arranged obliquely with respect to both the longitudinal axis of the brush and the circumferential direction of the brush such that the hair structure contacts the lower end of the nozzle. Tsutsumi teaches a longitudinal brush with the bristles (211) that are arranged obliquely with respect to both the longitudinal axis and the circumferential direction of the brush. Figure 2 shows the bristles arranged obliquely with respect to the longitudinal axis and figure 3 shows the bristles arranged obliquely with

Art Unit: 1744

respect to the circumferential direction of the brush since the bristles are positioned on the roller at a diagonal. Having the bristles positioned on the roller at a diagonal causes the bristles to be oblique to the circumferential direction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's bristles so that they are obliquely arranged as taught by Tsutsumi to increase the life expectancy of the brush. Bristles that are slanted rather than perpendicular to the longitudinal axis undergo stress when in use and therefore, will break more often than slanted bristles. Additionally, the slant of the bristles will create an induction force caused by the cleaning bias, and also a shearing force caused by the mechanical scrubbing of the brush. The induction force and the shearing force will act on the unwanted material on a nozzle and the material will be captured on the brush more effectively (col. 8, lines 33-39).

Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. (PGPub 2003/0127046) in view of Eriksson (USPN 6321688) and Tanaka et al. (USPN 6241827)

Zehner teaches a cleaning apparatus for a paint spray gun nozzle (108). The apparatus comprises a cleaning tank (12) containing a cleaning liquid (64). The tank has an open upper end (24) adapted to receive the lower end of the nozzle (figure 1). There is a cylindrical brush (52), which is disposed in the cleaning liquid (figure 4) for cleaning a nozzle (112). There is a motor (28), which is used to rotate the brush around a longitudinal axis thereof when the lower end of the nozzle is disposed in engagement with the brush. Zehner teaches all the essential elements of the claimed invention however fails to teach that the brush can be reciprocated horizontally and vertically (claim 15), that the device for rotating the brush also helps to move

Art Unit: 1744

the brush horizontally and vertically (claim 18) and also fails to teach that the cleaning tank comprises partition plates and a drain port (claim 15).

Eriksson teaches a cleaning apparatus comprising a longitudinal brush (29) that reciprocates vertically and horizontally (figure 3c and 3d). There is a swinging arm (59') for moving the brush horizontally and an extension arm (81) for moving the brush vertically. Tanaka teaches a cleaning tank (22) with partition plates (vertical portion of 21) extending upwardly from a bottom wall (not labeled but horizontal portion of 22) thereof to define a reservoir portion (21) which contains the cleaning liquid (L) within the cleaning tank. There is a drain port (22a) formed in the bottom wall laterally outward of the reservoir portion such that the cleaning liquid spilling out of the reservoir portion will be drained from the cleaning tank through the drain port (figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's brush so that it reciprocated vertically and horizontally as taught by Eriksson since the reciprocating brush will ensure that the entire portion (tip and sides) of the paint spray gun nozzle will get cleaned without spreading contamination (col. 2, lines 23-44). Additionally, it would have been obvious to one of skill in the art at the time the invention was made to modify the cleaning tank Zehner so that it comprises a reservoir portion with partition walls and a drain port in the cleaning tank as taught by Tanaka because then the cleaning tank can be filled to the maximum to ensure coverage of the brush at all times, such as when the brush is rotating and moving, without having concern for splashing or spillage.

Art Unit: 1744

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046) in view of Eriksson ('688) and Tanaka ('827) as applied to claim 15 above and further in view of Tsutsumi et al. ('457).

Zehner in view of Eriksson and Tanaka teach all the essential elements of the claimed invention however fail to teach that the hair structure of the brush is arranged obliquely with respect to the longitudinal axis of the brush. Tsutsumi teaches a longitudinal brush with the bristles (211) that are arranged obliquely (figure 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's bristles so that they are obliquely arranged as taught by Tsutsumi to increase the life expectancy of the brush. Bristles that are slanted rather than perpendicular to the longitudinal axis undergo stress when in use and therefore, will break more often than slanted bristles. Additionally, the slant of the bristles will create an induction force caused by the cleaning bias, and also a shearing force caused by the mechanical scrubbing of the brush. The induction force and the shearing force will act on the unwanted material on a nozzle and the material will be captured on the brush more effectively (col. 8, lines 33-39).

Claim 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046) in view of Eriksson ('688) and Tanaka ('827) as applied to claim 15 above and further in view of Batchelder (USPN 2164443).

Zehner in view of Eriksson and Tanaka teach all the essential elements of the claimed invention however fail to teach a brush cleaning means (claim 17) or a comb (claim 19) for scraping material off the long-length brush as it is rotated. Batchelder teaches a brush cleaning means (63) with teeth (66) adjacent a brush (22) with bristles. The cleaning means combs

Art Unit: 1744

through the bristles as the brush rotates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zehner's cleaning apparatus with a cleaning means such as a comb attached to the tank as taught by Batchelder so that the long-length brush will be kept clean since the comb-type element will remove any accumulation of material that accrue on the bristles (page 3, col. 2, lines 20-34).

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zehner et al. ('046) in view of Eriksson ('688) and Ichinose ('882) as applied to claim 1 above and further in view of Tanaka ('827).

Zehner in view of Eriksson and Ichinose teach all the essential elements of the claimed invention however fail to teach that the cleaning tank comprises partition plates and a drain port. Tanaka teaches a cleaning tank (22) with partition plates (vertical portion of 21) extending upwardly from a bottom wall (not labeled but horizontal portion of 22) thereof to define a reservoir portion (21) which contains the cleaning liquid (L) within the cleaning tank. There is a drain port (22a) formed in the bottom wall laterally outward of the reservoir portion such that the cleaning liquid spilling out of the reservoir portion will be drained from the cleaning tank through the drain port (figure 2). It would have been obvious to one of skill in the art at the time the invention was made to modify the cleaning tank Zehner so that it comprises a reservoir portion with partition walls and a drain port in the cleaning tank as taught by Tanaka because then the cleaning tank can be filled to the maximum to ensure coverage of the brush at all times, such as when the brush is rotating and moving, without having concern for splashing or spillage.

Response to Arguments

Applicant's arguments filed 4/10/07 have been fully considered but they are not persuasive.

Applicant argues that Zehner does not teach or even suggest using an elongated slit-like nozzle. The examiner agrees with this argument and notes that this was addressed in the final office action. It was stated that slit-like nozzles are well known in the art and therefore it would have been obvious to modify Zehner with a slit-like nozzle, however it appears that the applicant disagrees with it being well known and therefore, in this office action, the examiner based the rejection of this limitation with the prior art reference of Ichinose which teaches both various nozzles interchangeably based on the work to be done.

In response to applicant's argument that Tsutsumi and Batchelder are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Tsutsumi is analogous art since it is reasonably pertinent to a problem with which the applicant was concerned. The reference as well as the applicant acknowledges a problem of removing residue from a surface. It does not matter that the surfaces are different. The reference teaches removing residue with a rotating brush, as does the present invention. The brush of the present invention is used to remove residue from a nozzle while the brush of Tsutsumi is used to remove residue from a transfer drum. The reference is reasonably pertinent to the problem with which the inventor is concerned; removing residue. Additionally, in this case, Batchelder is analogous art since it is

Art Unit: 1744

reasonably pertinent to a problem with which the applicant was concerned. The reference as well as the applicant acknowledges a problem of removing debris from rotating brushes. Even though the rotating brushes are used in different environments, Batchelder is reasonably pertinent to the problem with which the inventor is concerned, since both the applicant and Batchelder address the problem of debris on the rotating brush and both teach a device to remove debris from the brush. Therefore, it is clear that one of skill in the art would have looked to various

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). With regards to the Eriksson reference, Eriksson teaches a brush that is movable based on differing sizes teats. It is known that there are various paint guns available and not all paint guns have the exact same nozzle, as taught by Ichinose. Therefore, it is obvious that one of skill in the art would modify the rotating brush of Zehner so that it moves similar to Eriksson to allow the cleaning device the capability of cleaning various paint gun nozzles. For the Tsutsumi reference, the rotating brush has slanted bristles to more effectively capture unwanted material when in use (col. 8, lines 33-39). Regardless of the environment being used, it is obvious that one of skill in the art would have found it obvious to modify any rotating brush with slanted bristles so that it will clean more effectively. And lastly, one of skill

Art Unit: 1744

would have found it obvious to use Batchelder's comb to remove any accumulated material on the brush regardless of the environment in which it is being used, because having a means for removing accumulated material from the brush will allow the brush to clean more efficiently.

The applicant again argues that the modification of Zehner with Eriksson would make Zehner inoperable for its intended use and that by allowing the brush to move vertically and horizontally would mean that a slot would need to be put into the sidewall of the container and the solvent would then drain out. The Examiner maintains the rejection and the same argument as stated in the final office action since the modification of the allowing the brush to move vertically and horizontally would not make the device inoperable. One of skill in the art would be able to modify the invention of Zehner so that the solvent would not drain out as shown in the present invention. The present invention has a brush that operates horizontally and vertically and yet no fluid is drained from the housing. Therefore, one of skill in the art would know to what steps to take to allow the brush to perform two movements without causing the solvent to be drained from the housing. Additionally, the Examiner would like to point out that the claim language does not state that the brush is completely emerged within cleaning liquid. The claim only states that the brush is disposed in the liquid. If a slot was formed in the sidewall to allow for vertical and horizontal movement and one of skill in the art could not figure a way to prevent the solvent from draining, the slot would not extend below the existing brush shaft (56). Therefore, the lower bristles of brush would still be located within the solvent since the solvent would only drain from the housing until the shaft of the brush.

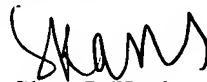
Art Unit: 1744

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shay L. Karls whose telephone number is 571-272-1268. The examiner can normally be reached on 7:00-4:30 M-Th, alternating F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gladys Corcoran can be reached on 571-272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Shay L Karls
Patent Examiner
Art Unit 1744